DOCUMENT RESUME

ED 165 587 HE 010 837

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TITLE The Influence of Instructor Tutoring on the Learning of Students Using the Mastery Method in Introductory Sociology.
PUB DATE 23 Jun 77
NOTE 64p.; A practicum presented to Nova University in partial fulfillment of the requirements for the degree of Doctor of Education

EDRS PRICE MF-$0.83 HC-$3.50 Plus Postage.
DESCRIPTORS Academic Achievement; College Faculty; *College Instruction; College Students; Comparative Analysis; Higher Education; *Mastery Learning; Peer Teaching; Sociology; Student Opinion; Teacher Participation; *Teaching Methods; *Tutoring
IDENTIFIERS Black Hawk College IL

ABSTRACT

The degree of influence instructor tutoring had on the performance of Black Hawk College sociology students was studied along with the question of whether students expressed a change in the degree of preference for the mastery approach when an instructor was actively involved in the learning process. Two classes were used: one during spring 1976 that did not receive instructor tutoring, and one during spring 1977 that did. Mean scores on a midterm exam were compared. At the close of the experiment, students were asked to express their preference for the mastery method of instruction as compared with the traditional lecture-discussion approach. Results demonstrated that there was no significant difference in the mean scores achieved on the midterm exam, nor was there any significant difference in the proportion of students expressing a preference for the mastery method when instructor tutoring was used. However, the smallness of the population tended to cause the tests to not be very sensitive. Recommendations included: (1) clarification of the mastery system in the college's schedule of classes; (2) peer tutoring; (3) increasing teachers' knowledge of and involvement with mastery learning; and (4) additional research of alternative delivery systems and student characteristics as predictors of success. (Author/LBH)

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THE INFLUENCE OF INSTRUCTOR TUTORING ON THE LEARNING OF STUDENTS USING THE MASTERY METHOD IN INTRODUCTORY SOCIOLOGY

LEARNING THEORY AND APPLICATIONS

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A PRACTICUM PRESENTED TO NOVA UNIVERSITY IN PARTIAL FULFILLMENT OF THE REQUIREMENTS FOR THE DEGREE OF DOCTOR OF EDUCATION

NOVA UNIVERSITY

June 23, 1977

HE010837

ABSTRACT

This study was designed to determine the degree of influence instructor tutoring had on the performance of students in an introductory sociology class. A second issue was to determine if students expressed a change in the degree of preference for the mastery approach when an instructor was actively involved in the learning process.

The sample population involved two intact introductory sociology classes at Black Hawk College. One class was from the spring of 1976 and did not receive tutoring from the instructor; the other class was from the spring of 1977 and did receive tutoring. The mean scores achieved on a midterm exam by both groups were compared. The null hypothesis was tested with a t-test at the .05 level, and the two-tailed critical value of t was utilized.

At the close of the experiment, students were asked to express their preference for the mastery method of instruction as compared with the traditional lecture-discussion approach. This generated two sets of proportions. The null hypothesis was tested with a z-test at the .05 level, and the two-tailed critical value of z was utilized.

Results demonstrated that there was no significant difference in the mean scores achieved on the midterm exam, nor was there any significant difference in the proportion of students expressing a preference for the mastery method when instructor tutoring was used. However, the smallness of the populations tended to cause the tests to not be very sensitive.

Recommendations included: (1) clarification of the mastery system in the college's schedule of classes; (2) peer tutoring;

(3) increasing teachers' knowledge of and involvement with mastery learning; and (4) additional research of alternative delivery systems and student characteristics as predictors of success.

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INTRODUCTION

The Statement of the Problem

The central issue of this research project was to determine the degree of influence instructor tutoring had on the performance of students in an introductory sociology class. A second issue was to determine if students expressed a change in the degree of preference for the mastery approach when an instructor was actively involved in the learning process.

Purpose of the Investigation

In the spring of 1976, a study was conducted in the sociology department of Black Hawk College to determine if there was a difference in the performance on a midterm and final exam between students taking a quasi-individualized mastery method of instruction and students taking a traditional lecture-discussion approach in the introductory course. A second issue of this 1976 study was to determine if there was a difference between the proportion of students expressing a preference for one method of instruction over the other. During this experiment students taking the mastery method of instruction worked independently in a learning laboratory environment with no instructor present, and no tutorial assistance was used in this laboratory setting.

The results of this study in the spring of 1976 demonstrated that there was no significant difference between the mean scores achieved on either the midterm or final exams, nor was there any significant difference between the proportions of students expressing a preference for one method of instruction over the other. However, one of the main recommendations of the study suggested that the quasi-individualized mastery method should be studied again with an instructor

present and giving tutorial help during the testing sessions (Beausang, 1976).

It seemed appropriate that the thrust of this current practicum was to follow-up this recommendation of the study of 1976. The sociology department of Black Hawk College was able to further strengthen the introductory sociology course with the information generated by this project.

Method of Investigation

A review of the related literature was undertaken to establish the background and significance of this study. Secondly, the mean score achieved on a midterm exam by tutored sociology students from the spring of 1977 was compared with the mean score achieved on the same midterm exam by sociology students involved in the 1976 experiment. Finally, the proportion of tutored students expressing a preference for the mastery approach, in the spring semester of 1977, was compared with the proportion from the 1976 group.

BACKGROUND AND SIGNIFICANCE

In 1975 there was a reduction in the community college appropriations bill in the State of Illinois. The net effect of this action for Black Hawk College was a deficit of several hundred thousand dollars (Williams, 1976). The situation in the current fiscal year worsened. According to Dr. Alban E. Reid, President of Black Hawk College, the financial cuts the college was making were hurting the classroom. In a news release he stated "Staff members are carrying heavier burdens and the long term impact will be that we won't be able to do the things we have done in the past as well" (Easterlund, 1977:1). The college board had already approved some $760,000 in reductions this year, including 49 teaching positions, in an effort to balance the budget (Easterlund, 1977). This monetary crunch resulted in a growing emphasis on increased productivity. Ways had to be found to increase teacher productivity without decreasing student performance.

> According to the Carnegie Commission:...more students can learn in independent modes that save faculty time for teaching additional courses or more students. Student-faculty ratios can therefore increase without inevitable loss of quality in instruction (1972:86).

The same report went on to say that independent modes of instruction or instructional technology may,

> provide the best means available to us for solving the difficult problem of continuing to educate growing numbers of students of all ages within a budget the American people can afford (Ibid.).

Also, increased emphasis on productivity and accountability has created a need for more effective approaches in teaching. More and more college instructors have experimented with teaching methods based upon principles of contingency management (Keller, 1968).

According to Goldwater and Acker:

> These programs have typically involved several characteristics: (a) course material is covered in relatively small units; (b) the student must attain a high level of performance ("mastery") in order to gain credit for a given unit and/or advance to further units; (c) the amount which the student covers, and often the rate at which he covers it, is individualized through self-pacing; (d) testing is carried out individually or in small groups through the use of student proctors, and (e) the student is provided with immediate feedback on his test performance. Reports on the application of these methods have claimed an encouraging degree of success (e.g. Alba and PennyPacker, 1972; Born, Gledhill, and Davis, 1972; Ferster, 1968; McMichael and Corey, 1969; Moore, Hauck and Cagne, 1973; Moore, Mahan and Ritts, 1969; Sheppard and MacDermott, 1970) (p. 152).

These programs as outlined above are frequently referred to as the Personalized System of Instruction (PSI). According to Fernald, et al., compared to traditional lecture approaches, this method of instruction, as well as producing significantly higher exam performance, also results in more positive attitudes toward coursework (1975). Although the 1976 study at Black Hawk College did not replicate these findings, it was felt that the outcome of that study was largely due to the lack of an instructor or trained student assistants in the learning laboratory setting (Beausang, 1976).

According to Bloom (1973),

> "Most students (perhaps over 90 percent) can master what we have to teach them, and it is the task of instruction to find the means that will enable our students to master the subject under consideration. Our basic task is to determine what we mean by mastery of the subject and to search for the methods and materials that will enable the largest proportion of our students to attain such mastery" (p. 94).

One of the primary ways that Bloom proposed for attaining this mastery was through tutorial assistance. He stressed the value of student tutors, and felt the one-to-one relationship between teacher and learner

should be reserved for cases where individuals had particular difficulties that couldn't be corrected in other ways.

A modified version of Bloom's recommendation was utilized for the purposes of this experiment. Student proctors assisted the instructor by scoring and recording the mastery materials during the laboratory sessions. This freed the instructor for individualized work with students who had particular questions about the material.

Additional studies have stressed the positive dynamics of tutorial programs and the beneficial results of active assistance by the instructor (Arndt, et.al., 1975). In a study undertaken to determine whether providing classroom teachers with feedback would result in changes in both teacher and student behavior, the benefits of teachers engaging in highly individualized assistance to students was clearly shown. The students of these teachers correctly answered more previously missed items than did participants in a control group (Moore and Schaut, 1975). A similar finding demonstrated that motivational help from an academic advisor resulted in better performance for students with advisor input when compared with students without advisor input (Decker, 1976).

The mastery approach to learning that was utilized in this study has been clearly reinforced by recent research. A student survey at Fresno City College indicated a strong desire for greater flexibility both in the time spent in class and the length of the calendar (Gibbs, 1975). This flexibility was present in the mastery approach of this project. A recent paper described the implementation of a mastery learning approach to instruction at Olive-Harvey College in Chicago

and demonstrated that a greater level of achievement had been attained by students in mastery learning classes (Jones, et.al., 1975).

However, a study at Harford Community College of traditional group-oriented instruction and the self-instructional models indicated that the students were nearly equally divided in their preferences for the two teaching approaches. The major reason that was given for selecting the self-instructional model was the self-pacing, and that for the traditional model was the group emphasis (Sepe and Connolly, 1974). A study at Moraine Valley Community College in Illinois indicated that while students favored an individualized course in sociology to traditional courses, they missed having a class identity and class discussion (Jicia, 1973).

The interest expressed in group activity in the Harford and Moraine Valley studies, and the ideas of Amitai Etzioni influenced the development of the eclectic learning position that was investigated in this project. Etzioni believes that the major emphasis of most text books and teachers in sociology has been on concepts, not the intellectual issues that lie at their root. For example, he feels we need to examine the underlying causes of social problems. In Etzioni's words:

> Students introduced to sociological perspectives as they learn to deal with these and similar intellectual questions, rather than via conceptual categories, will be better able to perceive the deeper issues behind current events, as well as the issues behind events that will arise in the future, long after the college course is over (1976:32).

Although a current project of the American Sociological Association stresses the importance of concepts as the building blocks toward understanding in sociology, the report seemed to reinforce the

position of Etzioni when it stated,

> The teacher and class conjoin in reflecting on the social context of concepts and the relevance of conceptual definition for the way social problems and social policies are publicly conceived. (1976:18).

A recent paper, based on the work of the American Sociological Association, further developed the idea of the concepts of sociology being used to build the framework for humanistic sociological learning. The paper concluded,

> It is our responsiblity as teaching sociologists to provide the theoretical knowledge (informed skepticism), and the practical ability (insightful observation) for the operations of social organizations; to guide our students toward a sound future, and a proper balance of community and individuality (Kaufman, 1977:9).

The combination of two quasi-individualized mastery sessions a week with one group-oriented, lecture-discussion session was utilized for the course studied in this project. This format was designed to build a proper balance, in theory and in practice, between individuality and community.

The eclectic design developed for this course was founded upon the information gained from the module on learning theory and application. In the forward of his book, Symonds aptly stated. "A teacher is a practitioner, an artist, an engineer who strives to help children learn; the psychologist is a scientist who strives to discover the laws of growth and learning" (1965). Therefore, it is the responsibility of the teacher, as a practitioner, to make the best application possible of the psychologists' laws of learning. The position of this practicum was that an eclectic approach was the best method for accomplishing the application of learning theory. However, it was discovered that

there are both advantages and disadvantages to this eclectic position.

One of the learning principles taken from this module was the idea that the successful teacher will use the concepts and theories which he most completely understands and which seem most appropriate to the problems with which he deals (Blair, Jones and Simpson, 1968). This learning principle illustrated the idea that an eclectic position would better enable a teacher to adapt a course to meet the demands of his preferred style of teaching. Research has rather consistently shown that a teacher, who is effective and comfortable with his teaching style, can experience large degrees of success regardless of the approach he uses.

Innumerable sources (Hilgard and Bower, 1975: Hudgins, 1977: Postlethwait and Russell, 1973) to mention only a few, have stressed the importance of individualizing instruction. It seemed in this project that an eclectic philosophy lent itself very well to meeting the demands of a community college student body, which was made up of so many varying academic backgrounds and cognitive learning styles. The tradition of associationism and Skinnerian psychology frequently did a better job with lower-level cognitive learnings, while higher-level cognitive learnings seemed to be better achieved with the more holistic cognitive or Gestalt approach. Furthermore, the work of Knowles (1973) and Cross (1976) has illustrated how the rapid growth of adult learners has exacerbated the problem of student differences in the community college, and this situation gives further credence to the eclectic position.

However, an eclectic position could have some distinct disadvantages. Eclecticism could result in a laissez faire policy in

the classroom (Hilgard and Bower, 1975). In short, this could create an atmosphere of "anything goes" and student learning might lack the rigor and direction that often times is more typical of a purist.

This lack of rigor and direction in the classroom could generalize to the entire curricular organization. As Lockwood stated, "we could end up producing just another 'eclectic muddle' of requirements taught with minimal conviction" (1977:32).

These above disadvantages are real threats to community college education. Therefore, it was imperative for this project, taking an eclectic position, to ultimately combine various views into a unified theory of learning and instruction. The philosophy which emerged was an approach that combined the individualization of mastery learning (Bloom, 1973); the accountablity and direction of a systematic approach to instruction (Herrscher, 1973); the importance of student responsibility as developed in Reality Therapy (Glasser, 1965); and the cognitive-humanistic emphasis of Etzioni (1976).

This review of the literature should clearly establish the relationship between this practicum and the objectives of the learning theory and application module. This review sought to achieve a more thorough grasp of the effectiveness of an eclectic approach in introductory sociology. Finally, specific recommendations for correcting and strengthening this learning theory position were based on this review of the literature and the statistical data that was collected during the project.

PROCEDURES

Definition of Terms

For the purposes of this study the lecture-discussion method, with which the delivery system of this study was compared, was operationally defined as a class meeting for three fifty minute sessions per week; two of these sessions were to be used for lectures and discussions related specifically to concepts covered in the text, and one of the sessions was to be used for specialized presentations and projects that covered underlying causes of social problems and related issues. Unit tests and the midterm exam were to be scheduled on fixed dates and had to be taken at that time.

Quasi-individualized was the term applied to the delivery system studied in this project and the 1976 experiment. Students were allowed to take tests when they were ready, but they had to complete seven quizzes within an eight week time period. Extensions of time were given when necessary.

For this study, mastery was operationally defined as an 80 percent grasp of the material. Three attempts for obtaining this score were allowed on each unit of study.

Student proctors in this study were two students selected from the classes involved in the experiment. They did not do any tutoring. They scored students' tests to provide them with immediate feedback; and then they recorded the results and kept track of the students' progress. The proctors took an active part in referring students to the instructor when they were having difficulty with the materials.

Finally, instructor tutoring in this study consisted of the instructor's active involvement with the learning process in two fifty minute open-lab settings a week. Students were continually encouraged to seek individual help from the instructor, and where it was warranted, special conferences were scheduled for students who were experiencing particular difficulty.

Limitations and Assumptions

One limitation of the validity of the study was that there was a smaller sample than would have been preferred and this limited the sensitivity of some of the statistical analyses. Also, since the sample was based on an intact class, this limited the external validity of the study. Another limitation was that quiz and exam items were taken exclusively from a text book, and it has been demonstrated that texts may be so influential as to override differences in instruction (Hilgard in Dubin and Taveggia, 1968). Finally, since there was an interval of one year between the experiment of the spring of 1976 and this study, there was the possibility that some students in the course had heard of the mastery approach being used in the class and had registered because of this factor. This perhaps would have biased the results in favor of the mastery method. Therefore, the class, was polled at the beginning of the semester and the score of any student who expressed knowledge of the fact that the mastery method was being used was not included in the computation of the mean score on the mid-term exam; nor was his opinion included on the preference survey.

For the purposes of this study, the following assumptions were made: (1) Since enrollments in all general introductory sociology

sections are open to the student body, it was assumed that the sample population from both semesters was reasonably representative of other classes in introductory sociology at Black Hawk College. (2) Since the same instructor and delivery system was utilized in both classes involved in the experiment, it was assumed that any differences in outcome would be the result of the tutoring of the instructor in the spring, 1977, class. However, the uncontrollable variables such as differences in maturity, experience, and intelligence levels were recognized as delimiting factors. (3) The midterm exam was carefully designed from past tests in sociology, and was assumed to be an adequate instrument for the measurement of student performance (Appendix, Document II). (4) Finally, the assumed homogeneity of the classes seemed to justify the use of parametric techniques.

Procedures for Collecting and Treating Data

The central objectives of this practicum were accomplished by a careful adherence to the following procedures:

1. A more in depth review of the literature, including an ERIC search, was conducted to peruse other related research.
2. The central issue to determine the degree of influence that instructor tutoring had on the learning of students was achieved by comparing the mean score obtained on a midterm exam in a sociology class from the current semester with the mean score achieved on the same exam by the students involved in the 1976 experiment.
3. Every attempt was made to duplicate the conditions of the

1976 experiment: (1) the spring semester; (2) the 9:00 a.m. class time; (3) an intact class; (4) the same text and tests; (5) Monday - Wednesday - Friday class sessions; and (6) the same instructor and course format were all used. The only variable that was intentionally changed was that, contrary to the 1976 experiment, the instructor was in attendance during the Monday and Friday test sessions and was actively tutoring students who needed assistance.

4. A statistical analysis was utilized to determine if there was a significant difference between the two mean scores achieved. The null hypothesis was tested with a t-test. The level of significance was at .05, and the two-tailed critical value of t was utilized.

5. In the original proposal, no analysis of variance was to be used. However, the nature of the scores achieved by the 1977 group warranted an analysis of variance (Appendix, Document IIIa).

6. The second issue of this practicum, to determine if there was a change in the degree of preference students expressed for the mastery approach when an instructor was active in the learning process, was assessed by using the same brief preference questionnaire that was used in the 1976 experiment (Appendix, Document I). The proportion of students who expressed a preference for the mastery approach in the 1977 semester was compared with the proportion from the 1976 group. It should be noted that the students

from the 1977 group did not directly experience the lecture-discussion format in sociology. Therefore, the design was explained to them exactly as it had been experienced by the control groups in the 1976 experiment. This might have placed another limitation on the validity of the study in that discrepancies often exist between what a person reports on an opinion survey and what he or she actually experiences in practice (Anastasi, 1968).

7. These proportions were subjected to statistical analysis. The null hypothesis was tested with a z-test. The level of significance was at .05, and the two-tailed critical value of z was utilized.
8. The two-tailed test was utilized in both analyses as it is a more conservative test.
9. In order to avoid the TYPE II ERROR of failing to recognize a significant difference which might have been present, the .05 level of significance was used for analyzing all data in this study.
10. Since the number of cases in each group was small, the top and bottom scores in each distribution were dropped to avoid the influence of atypical scores on a small sample.
11. Since an intact sociology class was used for this study, an explanation of sampling techniques was not necessary. However, it was understood that this condition limited the external validity of the study.

The Hypotheses

The first hypothesis was that instructor tutoring would have a positive impact on student learning as would be evidenced by higher scores achieved on a midterm exam. The second hypothesis was that students would express a greater preference for the mastery method when it was combined with instructor tutoring.

RESULTS

Twenty-two students were included in the class taking the midterm exam in the spring of 1976, and twenty-three took the midterm in the spring of 1977. However, as indicated, the top and bottom scores were dropped from each distribution (Appendix, Table 4). As Table 1 shows, there was no significant difference between the mean scores achieved by the 1976 group and the 1977 tutored group on the midterm exam. The .99 difference was not significant at the .05 level. Therefore, the null hypothesis was accepted and the original hypothesis was rejected.

Table 1

A Comparison of Scores Achieved on the Midterm Exam by Students in the 1976 Group and Students in the 1977 Tutored Group

Group	N	df	t	Critical t .05 level	Mean	S.D.
1976	20	39	.99[a]	1.68	82.3	7.38
1977	21				84.19	4.49

[a]Difference not significant at the .05 level.

As was mentioned in the procedures section, the distribution of scores received on the 1977 group warranted an analysis of variance between the two groups studied in this project. As Table 2 shows, there was a significant difference in variances between the two groups. The 2.73 difference was significant at the .05 level.

Table 2

An Analysis of Variance Between the Scores Achieved by the 1976 Group and the 1977 Tutored Group

Group	N	F	Critical F .05 level	Mean	S.D.
1976	20	2.73[a]	2.12	82.3	7.38
1977	21			84.19	4.49

[a]Difference significant at the .05 level.

Table 3 shows that there was no significant difference between the proportion of students expressing a preference for the mastery method of instruction during the spring of 1976 and the proportion expressing a preference when instructor tutoring was used during the spring of 1977. The calculated value of z (1.69) did not exceed the critical value of z (1.96); therefore, the null hypothesis was accepted.

Table 3

The Proportion of Students Indicating a Preference for the Mastery Method in the Spring of 1976 as Compared with the Preference Indicated by the Tutored Group of 1977

Group	N	Pro Mastery	z	Critical z .05 level
1976	47	28	1.69[a]	1.96
1977	28	22		

[a]Not significant at the .05 level.

Table 5 in the Appendix gives the reasons for the 1977 tutored students preferring the quasi-individualized mastery method of instruction. The main reasons for their preference were self-pacing, better understanding and increased motivation. Since only six students preferred the lecture-discussion method, the reasons for their choice were not placed in a table. However, they cited class interaction, better understanding, better motivation and more structure as the primary reasons for their preference.

DISCUSSION, IMPLICATIONS AND RECOMMENDATIONS

The limitations previously cited in this paper (i.e., smallness of sample, intact class, heavy reliance on a textbook, and the use of one instructor) seriously reduced the external validity of this study. However, the data produced have implications for the sociology department of Black Hawk College.

Although there was no significant difference between the mean scores produced on a midterm exam, the change that did occur was in a positive direction. The significant difference of variance between the two groups could have meant that the original samples lacked homogeneity. However, the lower degree of variance in the spring 1977 group, as indicated by the more closely distributed scores, could have been the result of the instructor tutoring which perhaps brought more of the students up to or beyond the 80 percent level of mastery.

The very nature of mastery learning requires criterion referenced testing (Green, 1975). These tests are designed to set specified minimum levels of acceptable competence, and they are not designed to detect individual differences. Therefore the criterion referenced nature of the midterm exam in this experiment could have been partially responsible for the lack of a significant difference between means.

Although the z-test indicated that there was no significant difference in the proportion of students from each group expressing a preference for the mastery method, it should be noted that the statistical computation report (Appendix, Document IIIb) disclosed that there was a difficulty detecting a difference that was significant

because of the relatively small populations. This interpretation, as to why there was no significant difference, seemed legitimate when the preference proportions were presented in percentages. In the spring of 1976, with no instructor tutoring, 59.6 percent of the students preferred the mastery method. In 1977, with tutoring, 78.6 percent of the students supported the mastery approach. This represented an increase of 19 percent. A cautious interpretation suggested that, with a larger population, this proportion could possibly represent a significant difference. Further research was indicated.

Recommendations

The mastery learning strategy was adopted for this course in introductory sociology because the mastery method rested on a foundation of fundamental principles of learning, and was in line with the community college's philosophic emphasis on instruction (Jones and others, 1975). This study seemed to reinforce this position and it generated the following recommendations for improving the present mastery approach.

1. The college schedule of classes should clearly indicate which sections of sociology are being taught by the mastery method. This would allow students at the outset to select between the mastery approach and lecture-discussion. Currently, these are the only two delivery systems being used in the department.

2. The modest improvement in scores on the part of the tutored students, and the significant difference in the variance suggested that the active involvement of the instructor should be continued and subjected to further evaluation. However, this method only allowed for a small increase in student load. Therefore, peer tutoring has been

recommended. The recommendation was endorsed by the chairman of the department and students who have recently completed introductory sociology under the mastery system are being recruited to serve as peer tutors in the fall. These student tutors will augment the work of the instructor and this will allow for a considerable increase in the size of class sections. Hopefully this will help to alleviate some of the present financial crisis that the college is experiencing. However, this recommendation was not made for financial reasons alone; it was firmly grounded on sound educational practice and learning theory. Much research has indicated that peer tutoring can be very effective, often surpassing the effectiveness of tutoring done by the instructor (Bloom, 1973; Cross, 1976; Palmatier, 1975).

3. The data gathered in this practicum and the review of the literature seemed to warrant a recommendation to increase teachers' knowledge of, and involvement in, the mastery method of instruction. A recent research study indicated that when teachers became involved in the strategy, their attitudes toward the mastery teaching philosophy were generally positive. Also, students' attitudes were favorably altered because of their teacher's use of mastery teaching (Okey, 1976). Perhaps this recommendation will result in increased offerings under the mastery system in the sociology department.

4. Since this practicum was limited to a comparison of only two methods of instruction, further research should examine alternative delivery systems such as simulation, audio-tutorial, and small group work.

5. Finally, much more sophisticated research is indicated.

Rather than looking at just group delivery systems, research within the department should begin to focus on student characteristics that might serve as predictors of success within various teaching designs.

Residual Finding

There was an attrition rate of 27.2 percent during the spring of 1976. However, when instructor tutoring was used in the spring of 1977, this attrition rate dropped to 17.1 percent. This finding would warrant further research as to the influence of instructor or peer tutoring on attrition rates.

Summary

The course studied in this practicum was based on an eclectic approach to learning. This eclecticism was founded on the firm belief that no one theory of learning has come up with all the answers. While Hilgard and Bower (1975) do not speak too favorably about eclecticism, they do state that "...no one has succeeded in providing a system invulnerable to criticism. The construction of a fully satisfactory theory of learning continues as an uncompleted task" (P. 27).

Continued research which examines the application of various learning principles, within a systematic framework, will assist in the construction of a fully satisfactory theory of learning. That has been the thrust of this practicum and the course that was studied. This process of evaluation and refinement will be continued in the future.

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REFERENCES

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APPENDIX

DOCUMENT I

Student Preference Questionnaire

Please indicate which method of instruction you would have preferred for this course.

Lecture-Discussion Format _____

Quasi-Individualized Mastery Approach _____

Please state the reason or reasons for the above choice.

1._____

2._____

3._____

4._____

*NOTE: The students responding to this questionnaire will not have experienced the lecture-discussion format in sociology. Therefore, the design will be explained to them exactly as it was experienced by the control groups in the 1976 experiment.

Sample Items from the Mid-term Exam

Which of the following best describes the sociological viewpoint.

a. Sociology sharply examines individual behavior.
b. Sociology is concerned exclusively with major social events.
c. Sociology explores patterns and regularities in human behavior.
d. Sociology deals with unique and irregular occurrences in human life.

A woman who is working full time at a demanding career and at the same time taking full responsibility for cleaning, cooking, and raising small children probably experiences:

a. normlessness.
b. role conflict.
c. discrimination.
d. structuralism.

The melting pot ideal involves:

a. the adoption of the language, customs, religion, and dress of the dominant culture by the immigrants.
b. the conformity by the immigrants to American ways, so that the immigrants' culture will be like that of the dominant culture.
c. the complete intermixing of the dominant culture with all of the different cultures of the immigrants, so that a hybrid culture emerges.
d. none of the above.

STATISTICAL COMPUTATION REPORT PREPARED FOR KENNETH R. BEAUSANG BY
PHILIP M. BECKMAN
MATHEMATICS/STATISTICS

PROBLEM ONE

SPRING 1976	SPRING 1977
$\bar{x} = 82.3$	$\bar{x} = 84.19$
$s = 7.38$	$s = 4.47$
$n = 20$	$n = 21$

TWO SAMPLE t-TEST FOR DIFFERENCE IN MEAN:

$$t = \frac{84.19 - 82.3}{\sqrt{\frac{(7.38)^2}{20} + \frac{(4.47)^2}{21}}} = \frac{1.89}{1.92} = .99$$

BUT t-TEST ASSUMES NO SIGNIFICANT DIFFERENCE IN VARIANCES, YET...

$$F = \frac{(7.38)^2}{(4.47)^2} = \frac{54.46}{19.98} = 2.73$$ BUT F IS CRITICAL AT 2.12

HENCE THE DIFFERENCE IN VARIANCES IS SIGNIFICANT AT THE .05 LEVEL.

THEREFORE THE t-TEST FAILS TO SHOW DIFFERENCE IN MEANS IS SIGNIFICANT, BUT F SHOWS DIFFERENCE IN VARIANCES IS SIGNIFICANT.

PROBLEM TWO

THE SECOND QUESTION CONCERNING PROPORTIONS WILL PRESENT DIFFICULTY IN DETECTING A DIFFERENCE THAT IS SIGNIFICANT BECAUSE OF THE RELATIVELY SMALL POPULATIONS.

SPRING 1976 SPRING 1977

IS $\frac{28}{47}$ A SIGNIFICANTLY DIFFERENT RATIO FROM $\frac{22}{28}$

$x_1 = 28,\ n_1 = 47,\quad x_2 = 22,\ n_2 = 28$

$p = \frac{28 + 22}{47 + 28} = \frac{50}{75} = \frac{2}{3}$

$\therefore q = \frac{1}{3}$

$\sigma_{\bar{p}_1 - \bar{p}_2} = \sqrt{\frac{1}{3} \cdot \frac{2}{3}\left(\frac{1}{47} + \frac{1}{28}\right)}$

$\doteq .1125$

z-TEST FOR THE DIFFERENCE IN TWO PROPORTIONS:

$$z = \frac{\frac{28}{47} - \frac{22}{28}}{\sigma_{\bar{p}_1 - \bar{p}_2}} = \frac{-.1900}{.1125} \doteq -1.69$$

z is Critical at ± 1.96

Table 4

Simple Frequency Distribution of the Scores Achieved on a Midterm Exam From the Spring of 1976 and the Spring of 1977.

Spring Score	1976 F	Spring Score	1977 F
94	2	92	1
92	1	90	3
90	1	88	2
88	1	86	2
86	2	84	4
84	2	82	5
82	1	80	2
80	5	78	1
78	1	74	1
76	2	N =	21[a]
70	1		
66	1		
N =	20[a]		

[a]As was mentioned in an earlier portion of this paper, the top and bottom scores have been dropped from each of these distributions to avoid the influence of atypical scores.

Table 5

Reasons Given for Students Stating a Preference for the Quasi-Individualized Mastery Method of Instruction --Spring 1977

N = 22

Reasons	N	Percentage
1. Self-pacing	13	59.1
2. Reworking tests	5	22.7
3. Better understanding	12	54.5
4. Increased responsibility	2	9.1
5. Less class attendance	3	13.6
6. More frequent testing	3	13.6
7. Better study habits	1	4.5
8. More freedom	2	9.1
9. Better preparation for exam	1	4.5
10. Increased motivation	7	31.8
11. Improvement of grade	3	13.6
12. No fear of failure	1	4.5
13. Less pressure	3	13.6
14. Increased interaction with instructor	4	18.8

Table 6

Reasons Given for Students Stating a Preference for the Quasi-Individualized Mastery Method of Instruction --Spring 1976

N = 28[a]

Reasons	N	Percentage
1. Self-pacing	19	67.8
2. Reworking tests	9	32.1
3. Better understanding	10	35.7
4. Increased responsibility	5	17.8
5. Less class attendance	5	17.8
6. More frequent testing	4	14.2
7. Better study habits	3	10.7
8. More freedom	5	17.8
9. Better preparation in final	2	7.1
10. Immediate feedback	2	7.1
11. Increased motivation	3	10.7
12. Improvement of grade	7	25.0
13. No fear of failure	3	10.7

[a]Although 28 students expressed a preference for this method, 15 (53.5 percent) of them stated that they felt they would have profited from more contact with the instructor.

PRACTICUM PROPOSAL CRITIQUE

TITLE Influence of Instructor Tutoring on Student's Using Reading Method-Sociology PARTICIPANT K Bowersox

MODULE Learning Theory CLUSTER D. C

The below listed references may be referred to in the following comments:

REFERENCE: (1) Practicums: National Ed. D. Program for Community College Faculty (Ft. Lauderdale: Nova University Press, 1976). Referred to below as Practicums.

(2) Campbell and Ballou, Form and Style: Thesis, Reports, Term Papers, 4th Ed. (Boston: Houghton Mifflin, 1974); referred to below as Campbell.

An explanation of the deficiencies for any criterion rated less than 3 is contained below.

TITLE PAGE

1. The title page conforms to format. 1 2 3 (4) 5 NA

2. The title page clearly reflects the nature of the investigation. 1 2 3 (4) 5 NA

INTRODUCTION

1. The problem is stated in a clear and concise declarative sentence which is basically an elaboration (or restatement) of the title. 1 2 3 (4) 5 NA

2. The significance to the institution is clearly stated so that the evaluator can recognize what difference to the institution the proposed practicum can make. 1 2 3 (4) 5 NA

INTRODUCTION (Cont.) PARTICIPANT Bowersox 36

3. A foundation for the study is provided through a brief review of related and appropriate literature. Normally the participant should make every attempt to include recent literature. 1 2 3 (4) 5 NA

4. The topic is appropriate for the particular core module, and the relationship between the proposed practicum and the basic principles of the core module has been indicated. 1 2 3 (4) 5 NA

PROCEDURE

1. Procedures to be followed are sufficiently defined to the extent that may be replicated. 1 2 3 (4) 5 NA

2. Procedures are appropriate to conduct the investigation. 1 2 3 (4) 5 NA

3. Procedures for the collection of data are appropriate and clearly defined. 1 2 3 (4) 5 NA

4. If statistical analysis is to be used, the particular analysis selected is clearly stated and appropriate. 1 2 (3) 4 5 NA

Page 5 #4 - Should state what stat you are going to use - You only state a "T" test

PROCEDURE (Cont.) PARTICIPANT 37 K. Beausang

5. Sampling techniques, if used, are stated and appropriate. 1 2 3 4 5 (NA)

6. A copy of any questionnaire to be used is included (unless development of a questionnaire is the major thrust of the practicum itself). 1 2 3 (4) 5 (NA)

7. If a questionnaire is to be used or developed, procedures for establishing reliability and validity are described. 1 2 3 (4) 5 NA

8. The procedures are feasible and practical for the investigation. 1 2 3 (4) 5 NA

EXPECTATIONS

1. Expected outcomes are clearly stated. 1 2 3 (4) 5 NA

2. Expectations are reasonable and can be derived from the investigation. 1 2 3 (4) 5 NA

3. Concrete statements with respect to the importance to the institution are made. 1 2 3 (4) 5 NA

EXPECTATIONS (Cont.) PARTCIPANT L. Beausang

4. Improvement of the educational process will be possible as a result of the investigation. 1 2 3 (4) 5 NA

PRACTICUM PROPOSAL CHECK SHEET

1. Check sheet is included. 1 2 3 (4) 5 NA

2. Check sheet is completed. 1 2 3 (4) 5 NA

TECHNICAL ASPECTS

Title page	1	2	3	(4)	5	NA	Tables	1	2	3	4	5	(NA)
Margins	1	2	3	(4)	5	NA	Figures	1	2	3	4	5	(NA)
Spacing	1	2	3	(4)	5	NA	Spelling	1	2	3	(4)	5	NA
Neatness	1	2	3	(4)	5	NA	Punctuation	1	2	3	(4)	5	NA
Quotations	1	2	3	(4)	5	NA	Sentence Structure	1	2	3	(4)	5	NA
References	1	2	3	(4)	5	NA	General Writing Style	1	2	3	(4)	5	NA
Typing	1	2	3	(4)	5	NA	Bibliography	1	2	3	(4)	5	NA

COMMENTS:

APPENDIX

1. Materials included are appropriate 1 2 3 (4) 5 NA

2. Proper references to the appendix 1 2 3 (4) 5 NA

3. Relevancy of Contents 1 2 3 (4) 5 NA

4. General Format 1 2 3 (4) 5 NA

SPECIAL NOTES: PARTICIPANT K. Beausang

Kevin: you should decide definitely what test you are going to use: T-test "t", ANOVA etc. or what on page 5 #4.

Your have some delimitations on your study. Intelligence levels of your two samples - U. uncontrollable elements.

Assumptions:

Should cause might after Procedures

Extra Study - Same will do etc

Make these changes and submit.

Author's note -- As stated on page 26, item # 8 of the Nova Practicum Guide, a limitations and assumptions section will be developed in the completed practicum.

p. 5 #4 the t test for difference in mean for two independent samples will be used. There will be no analysis of variance

Approved X Not Approved _____

Ray L. Olsen
Evaluator's Signature (Date)
N.K.A.

Institute for Higher Education

JOHN A. SCIGLIANO
Director
ROSS E. MORETON
Associate Director
GEORGE M. BARTON
Director of Instruction
EUGENE E. DUBOIS
National Education Professor
LELAND L. MEDSKER
Director of Major Applied Research Advisors

May 25, 1977

Mr. Kenneth R. Beausang
2504 31 Avenue Ct.
Moline, Ill. 61265

Dear Mr. Beausang:

Your practicum proposal for the core module, Learning Theory has been approved.

The date for submission of your practicum report is two (2) weeks following the third seminar meeting in this core module.

Sincerely,

George M. Barton
Director of Instruction

GMB:
co
cc: Dr. Robert White

COMMENTS ON PROPOSAL THE INFLUENCE OF INSTRUCTOR TUTORING ON THE LEARNING OF STUDENTS USING THE MASTERY METHOD IN INTRODUCTORY SOCIOLOGY BY Kenneth R. Beausang

MODULE Learning Theory and Applications CLUSTER Quad-Cities

The below listed references may be referred to in the following comments.

REFERENCE: (1) Practicums: National Ed. D. Program for Community College Faculty (Ft. Lauderdale: Nova University Press, 1976). Referred to below as Practicums.

(2) Campbell and Ballou, Form and Sytly: Thesis, Reports. Term Papers, 4th ed. (Boston: Houghton Mifflin, 1974); referred to below as Campbell.

This proposal concerns a topic which is appropriate for development under the Learning Theory and Applications module. The results of the practicum should be interesting and significant in assessing the effectiveness of the pedogagical approach involved. The procedures as set forth should provide the basis for the development of an acceptable practicum.

PASS_____ NO PASS_____

EVALUATOR Dr. Donald C. Rigg

DATE 5-24-77

THE INFLUENCE OF INSTRUCTOR TUTORING ON THE LEARNING OF STUDENTS USING THE MASTERY METHOD IN INTRODUCTORY SOCIOLOGY

LEARNING THEORY AND APPLICATIONS

by

Kenneth R. Beausang, M. A.

Black Hawk College

CLUSTER COORDINATOR

Dr. Robert K. White

QUAD-CITIES CLUSTER

A PRACTICUM PROPOSAL PRESENTED TO NOVA UNIVERSITY IN PARTIAL FULFILLMENT OF THE REQUIREMENTS FOR THE DEGREE OF DOCTOR OF EDUCATION

NOVA UNIVERSITY

May 9, 1977

The Statement of the Problem

The central issue of this research project will be to determine the degree of influence instructor tutoring has on the learning of students in an introductory sociology class. A second issue will be to determine if students express a change in the degree of preference for the mastery approach when an instructor is actively involved in the learning process.

Significance to the Institution

In the spring of 1976, a study was conducted in the sociology department of Black Hawk College to determine if there was a difference in the performance on a midterm and final exam between students taking a quasi-individualized mastery method of instruction and students taking a traditional lecture-discussion approach in the introductory course. A second issue was to determine if there was a difference between the proportion of students expressing a preference for one method of instruction over the other. During this experiment students taking the mastery method of instruction worked independently in a learning laboratory environment with no instructor present, and no tutorial assistance was used in this laboratory setting.

The results of this study in the spring of 1976 demonstrated that there was no significant difference between the mean scores achieved on either the midterm or final exams, nor was there any significant difference between the proportions of students expressing a preference for one method of instruction over the other. However,

one of the main recommendations of the study suggested that the quasi-individualized mastery method should be studied again with an instructor present and giving tutorial help during the testing sessions (Beausang, 1976).

It seems appropriate that the thrust of this current practicum will be to follow-up this recommendation of the study of 1976. The sociology department of Black Hawk College will be able to further strengthen the introductory sociology course with the information generated by this project.

Review of the Related Literature

In 1975 there was a reduction in the community college appropriations bill in the State of Illinois. The net effect of this action for Black Hawk College was a deficit of several hundred thousand dollars (Williams, 1976). The situation in the current fiscal year has worsened. According to Dr. Alban E. Reid, President of Black Hawk College, the present financial cuts the college is making are hurting the classroom. In a recent news release he stated "Staff members are carrying heavier burdens and the long term impact will be that we won't be able to do the things we have done in the past as well" (Easterlund, 1977:1). The college board has already approved some $760,000 in reductions this year, including 49 teaching positions, in an effort to balance the budget (Easterlund, 1977). This monetary crunch has resulted in a growing emphasis on increased productivity. Ways have to be found to increase teacher productivity without decreasing student performance.

> According to the Carnegie Commission: ...more students can learn in independent modes that save faculty time for teaching additional

> courses or more students. Student-faculty ratios can therefore increase without inevitable loss of quality in instruction (1972:86).

The same report went on to say that independent modes of instruction or instructional technology may,

> provide the best means available to us for solving the difficult problem of continuing to educate growing numbers of students of all ages within a budget the American people can afford (Ibid.).

Also, increased emphasis on productivity and accountability has created a need for more effective approaches in teaching. More and more college instructors have experimented with teaching methods based upon principles of contingency management (Keller, 1968).

According to Goldwater and Acker:

> These programs have typically involved several characteristics: (a) course material is covered in relatively small units; (b) the student must attain a high level of performance ("mastery") in order to gain credit for a given unit and/or advance to further units; (c) the amount which the student covers, and often the rate at which he covers it, is individualized through self-pacing; (d) testing is carried out individually or in small groups through the use of student proctors, and (e) the student is provided with immediate feedback on his test performance. Reports on the application of these methods have claimed an encouraging degree of success (e.g. Alba and Pennypacker, 1972; Born, Gledhill, and Davis, 1972; Ferster, 1968; McMichael and Corey, 1969; Moore, Hauck and Cagne, 1973; Moore, Mahan and Ritts, 1969; Sheppard and MacDermott, 1970) (p. 152).

These programs as outlined above are frequently referred to as the Personalized System of Instruction (PSI). According to Fernald, et al., compared to traditional lecture approaches, this method of instruction, as well as producing significantly higher exam performance, also results in more positive attitudes toward coursework (1975). Although the 1976 study at Black Hawk College did not replicate these findings, it was felt that the outcome of that study was largely due to the lack of an instructor or trained student assistants in the learning laboratory setting (Beausang, 1976).

An eclectic learning theory position underlies the introductory sociology class that will be studied in this practicum. This eclecticism is founded on the firm belief that no one theory of learning has come up with all the answers. While Hilgard and Bower (1975) do not speak too favorably about eclecticism, they do state that "...no one has succeeded in providing a system invulnerable to criticism. The construction of a fully satisfactory theory of learning continues as an uncompleted task" (p. 27).

This eclecticism will be clarified and defended more thoroughly in the completed practicum. Basically, it combines the associationism of Thorndike (in Hilgard and Bower, 1975), the behaviorism of Skinner (1971), and the cognitive-humanistic emphasis of Etzioni (1976).

PROCEDURES

The central objectives of this practicum will be accomplished by a careful adherence to the following procedures:

1. A more in depth review of the literature, including an ERIC search, will be conducted to peruse other related research.
2. The central issue to determine the degree of influence that instructor tutoring has on the learning of students will be achieved by comparing the mean score obtained on a midterm exam in a sociology class from the current semester with the mean score achieved on the same exam by the students involved in the 1976 experiment.
3. Every attempt will be made to duplicate the conditions of the 1976 experiment: (1) the spring semester; (2) the 9:00 a.m. class time; (3) an intact class; (4) the same text and tests; (5) Monday - Wednesday - Friday class sessions; and (6) the same instructor and course format will all be used. The only variable that will be intentionally changed is that, contrary to the 1976 experiment, the instructor will be in attendance during the Monday and Friday test sessions and will be actively tutoring students who need assistance.
4. A statistical analysis will be utilized to determine if there is a significant difference between the two mean scores achieved. The null hypothesis will be tested with a t-test. The level of significance will be at .05, and the two-tailed critical value of t will be utilized.

5. The second issue of this practicum, to determine if there is a change in the degree of preference students express for the mastery approach when an instructor is active in the learning process, will be assessed by using the same brief preference questionnaire that was used in the 1976 experiment (Appendix, Document I). The proportion of students expressing a preference for the mastery approach this semester will be compared with the proportion from the 1976 group.
6. These proportions will be subjected to statistical analysis. The null hypothesis will be tested with a z-test. The level of significance will be at .05, and the two-tailed critical value of z will be utilized.
7. The two-tailed test will be utilized in both analyses as it is a more conservative test.
8. In order to avoid the TYPE II ERROR of failing to recognize a significant difference which may be present, the .05 level of significance will be used for analyzing all data in this study.
9. Since the number of cases in each group will be small, the top and bottom scores in each distribution will be dropped to avoid the influence of atypical scores on a small sample.
10. Since an intact sociology class will be used for this study an explanation of sampling techniques is not necessary. However, it is understood that this condition will limit the external validity of the study.

EXPECTATIONS

It is anticipated that the objectives of this practicum will benefit the students of Black Hawk College and improve the learning process by producing the following outcomes:

1. HYPOTHESIS I - Instructor tutoring will have a positive impact on student learning as will be evidenced by higher scores achieved on a midterm exam.
2. HYPOTHESIS II - Students will express a greater preference for the mastery method when it is combined with instructor tutoring.
3. Specific recommendations for instituting changes in the introductory sociology class will be developed.
4. Recommendations for incorporating some of these learning practices into other courses in the sociology department will be suggested.
5. Finally, sound learning practices that are also economical will help to ease the financial crisis of the college.

REFERENCES

Beausang, Kenneth R. "A Comparative Analysis of the Lecture-Discussion Method of Instruction and a Quasi-Individualized Mastery Approach in Introductory Sociology." Unpublished Ed.D. practicum, Nova Univeristy, 1976.

The Carnegie Commission on Higher Education. The Fourth Revolution. New York: McGraw-Hill, 1972.

Easterlund, Dean. "Raises Unlikely for Black Hawk College Faculty," The Daily Dispatch, April 27, 1977, p. 29.

Easterlund, Dean. "Reid Wants Referendum," The Daily Dispatch, April 26 1977, pp. 1 and 7.

Etzioni, Amitai. "The Importance of Humanistic Sociology," The Chronicle of Higher Education. January 19, 1976, p. 32.

Fernald, Peter S., et al. "Systematic Manipulation of Student Pacing..." Teaching of Psychology, Volume 2, Number 4 (December 1975), p. 147.

Goldwater, B. C. and L. E. Acker. "Instructor-Paced, Mass-Testing for Mastery Performance in an Introductory Psychology Course," Teaching of Psychology, Volume 2, Number 4 (December 1975), p. 152.

Hilgard, E. R. and G. H. Bower. Theories of Learning. (4th ed.) Englewood Cliffs: Prentice-Hall, Inc. 1975.

Skinner, B. F. Beyond Freedom and Dignity. New York: Bantam Books, 1971.

Williams, Ken. "Muscle, Bone and Blood Cut from Budget," The Chieftan, Volume XIV, Number 15 (February 11, 1976), p. 1.

APPENDIX

Student Preference Questionnaire

Please indicate which method of instruction you would have preferred for this course.

Lecture-Discussion Format _____

Quasi-Individualized Mastery Approach _____

Please state the reason or reasons for the above choice.

1. _____

2. _____

3. _____

4. _____

*NOTE: The students responding to this questionnaire will not have experienced the lecture-discussion format in sociology. Therefore, the design will be explained to them exactly as it was experienced by the control groups in the 1976 experiment.

For Office Use Only

Practicum Director's Approval ___yes ___no

Date Approval Was Mailed _____

For Office Use Only

53

Cluster _____

Multiple Practicum ___yes ___no

Date Received _____

PRACTICUM PROPOSAL CHECK SHEET*

1. Name of participant(s): Kenneth R. Beausang

Cluster: Quad-Cities Date: May 2, 1977

2. Job title: Associate Professor of Psychology and Sociology

3. Area of specialization (circle one)

a) Administration
b) Behavioral Sciences
c) Engineering Technology
(d) Curriculum and Instruction

4. Title of the practicum: The Influence of Instructor Tutoring on the Learning of Students Using the Mastery Method in Introductory Sociology

5. What change in your institution are you proposing? Improvement in the introductory course in the department of sociology

6. Where will the practicum be carried out?

Institution: Black Hawk College
Department: Psychology and Sociology

7. Does the design contain criteria for measuring the results of the practicum? Yes

8. What are the required inputs?

a) Estimated number of man-hours to do the practicum, and by whom? 150 Kenneth R. Beausang

b) Are needed facilities and other means available?

Yes

Note: If the performance of the practicum requires prior approval from a superior, has such approval been secured?

Yes

c) Time span -- when (date) will the practicum be started and when (date) is it expected to end?

April 25, 1977 -- June 3, 1977

d) In case of a joint practicum, has the role of each practitioner been clearly and fully described?

9. Nova University target date for submitting proposal

May 9, 1977

10. Nova University target date for completed practicum

June 20, 1977

* As an aid to the participant in drawing up a practicum proposal (and for evaluation), this check sheet should be filled out and submitted with the proposal.